88 per cent. But that is a result which occurs likewise in the Bessemer process, or is even more unfavourable than in this. It can, nevertheless, be still worse if the process is terminated without complete utilisation of the iron content of the slag. Such-like methods of working are at the present still practised in many places, whereof the best evidence is given by the slag analyses, which are set out on p. 175, in which up to above 18 per cent. Fe may be found.

Owing to a high iron content in the final slag, a considerably higher requirement of ferro-manganese, and therewith an increase in the manufacturing costs", is caused in addition.

In illustration of these disadvantages, let some data be furnished which issue from some works which were compelled to work exclusively with bad scrap, and of that much tin sheet scrap, and as little as possible pig-iron, which contained very little manganese. The normal duration of the " heat " was seven to eight hours with 12 to 13-ton charges; the loss of charge amounted to 10 to 12 per cent, the metal was strongly oxygenated, and required 1*2 per cent, ferro-manganese for deoxidation. The normal final slag had (after resultant manganese addition) the following composition:— 27 per cent. SiOa, 9 per cent. FeO, 5 per cent. Mn, 47 per cent. CaO, 8 per cent. MgO, 3 per cent. P205.

A " heat ".from a like charge, but which had melted down too soft, necessitated several additions of spiegel and pig iron ; since, however, these had evidently not been correctly adjusted, the heat remained fourteen hours in the furnace and required 3*25 per cent, ferro-manganese for deoxidation. The material, in spite of this, was of very inferior quality. The composition of the final slag, with

16-17 per cent. Si02, 19'32 per cent. FeO, 618 per cent.
Mn, 36*4 per cent. CaO, 16'14 per cent. MgO, and
2*5 per cent. P205

shows clearly the cause of the failure; a deficiency of reducing agents ruled, and thereby the oxidising action of the furnace could not be sufficiently taken up.

The great difference in price between individual pig irons and kinds of scrap makes it in many localities impossible to